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Abstract
The purpose of the study was to evaluate the knowledge level and degree to which educational diagnosticians recommend evidence-based strategies when writing full individual evaluations (FIE). The study used survey research. One hundred and ten educational diagnosticians completed the 34 question survey. Results indicate that participants possess limited knowledge of Strategic Instruction Model (SIM) strategies related to reading and storing and remembering information. Moreover, results suggest participants do not possess knowledge nor do they recommend SIM strategies related to expressing information.

Introduction

The provision of evidence-based instruction and intervention that addresses the individual needs of struggling students is one of the primary components of a response to intervention (RTI) process (Shinn, 2007). As an evidence-based practice, strategy instruction (SI) can assist students with specific learning disabilities (SLD) to cope with the demands of the academic curriculum (Lenz, 2006). Extensive research has been conducted on learning strategies and the benefits of such instruction (Deshler & Schumaker, 1993; Lenz & Hughes, 1990; Mastropieri, Scruggs, & Levin, 1985; Schumaker & Deshler, 2003). Marzano, Pickering, and Pollock (2001) identified nine instructional strategies that when implemented have a high probability of enhancing achievement for students in all grade levels and across all subject areas. Examples of these instructional strategies include teaching summarizing and note taking and the use of questions, cues, and advance organizers.

Learning strategies are instructional approaches that assist students to consciously think about learning (Lenz, 2006). The use of strategies can help to facilitate learning (Wendling & Mather, 2009). The goal of SI is to teach strategies effectively so that the student generalizes strategies learned across settings. Each strategy is learned and utilized to an optimal level with minimum effort required by the teacher and the student (Lenz, 2006). Moreover, the purpose of SI is to teach students how to learn content related material (Hock & Deshler, 2003) and to understand why they are learning it (Pressley & Harris, 1990).

The purpose of this article is to report findings of a research study that evaluated the knowledge level and degree to which educational diagnosticians recommend evidence-based strategies when writing full individual evaluations (FIE). The overall goal is to provide information that will assist educational diagnosticians in writing evidence-based recommendations that can be implemented in classroom settings.

Rationale for Current Study

Assessment personnel have not generally included recommendations [of specific evidence-based strategies] when writing evaluations. Instead, the focus has been on whether the student is eligible for special education services (Mather & Wendling, 2005; Rueter, Stephens, & Kinnison, 2008). The absence of specific evidence-based

strategies may be a result of assessment training programs and state procedural practices that emphasize eligibility criteria. Cavin (2007) conducted a study of 432 (N = 432) educational diagnosticians in the state of Texas regarding the state competencies for certification. Participants reported that they received little to no training in understanding of appropriate curricula and instructional strategies for students with disabilities.

Educational diagnosticians' roles vary from state to state and even the title by which these professionals are known is often different. Regardless of their title, educational diagnosticians share an ability to diagnose the learning problems of students (National Clearinghouse for Professions in Special Education [NCPSE], 2000).

Design and Purpose of Study

The study design was descriptive utilizing survey research. The purpose was to evaluate the knowledge level and degree to which participants recommend evidence-based strategies from the Strategic Instruction Model (SIM) when writing full individual evaluations.

Method

A survey instrument was developed based on a thorough review of the literature on evidence-based learning strategies. After identifying general learning strategies, specific evidence-based learning strategies were chosen from University of Kansas Center for Research on Learning to be included on the instrument. The strategies chosen for inclusion in the survey were nationally validated. A 34 question, 4 point-Likert Scale instrument was drafted. The instrument was reviewed by a panel of experts which consisted of faculty members and practicing educational diagnosticians. Next, an expert who is certified to offer professional development in Strategic Instruction Model reviewed the survey. Based on advice from the SIM professional developer, the instrument was limited to three areas: (a) strategies related to reading, (b) strategies related to expressing information, and (c) strategies related to storing and remembering information.

A pilot test was conducted during the spring semester of 2008. Seven educational diagnosticians assigned to elementary campuses in a suburban public school district in north central Texas were asked to distribute copies of the survey to first through sixth grade teachers. In addition, eleven graduate students distributed copies of the survey in the campuses in which they were assigned to first through sixth grade teachers. Teachers were chosen as the population for the pilot to determine if they utilized SIM strategies in instructional practices in the classroom. Fifty-eight participants returned a completed survey. To reduce survey items into definable clusters and to establish construct validity, factor analysis was conducted. Cronbach's alpha was utilized to establish reliability of the instrument.

The following are two examples of questions posed on the survey. (1) I possess knowledge of the Word Identification Strategy (a SIM strategy for identifying prefixes, suffixes, and stems by syllabication rules), (2) I recommend the Word Identification Strategy (a SIM strategy for identifying prefixes, suffixes, and stems by syllabication rules).

Participants
Participants were comprised of 110 educational diagnosticians in Texas who were assigned to elementary campuses. Elementary level in this study is defined as grades first through sixth. Participants were selected in one of the two following ways. First, a complete list of Texas Directors of Special Education was obtained from the special education director in the district in which the primary author was employed. Each director on the list was emailed a copy of an invitation letter with the survey link. In the letter, special education directors were asked to distribute the letter via email to educational diagnosticians assigned to elementary campuses employed in their school district.

The second method of solicitation of participants was through the twenty educational service center evaluation specialists. A list of evaluation specialists throughout the state of Texas was obtained from the evaluation specialist at Region XI Education Service Center. Evaluation specialists at the twenty educational service centers in Texas were emailed a copy of the invitation letter with the survey link. In the letter, the evaluation specialists were asked to distribute the letter via email to educational diagnosticians assigned to elementary campuses employed in their educational service center area.

Data Collection Procedures
The survey was distributed via online through Survey Monkey to educational diagnosticians assigned to elementary campuses in the state of Texas. The link to the survey was available for approximately four weeks to allow participants ample time to respond. Participants selected one of four choices posed on the Likert Scale. After the data was collected, each choice was assigned a number from one to four. One indicated no knowledge or no utilization of recommendations, two indicated limited knowledge or limited utilization of recommendations, three indicated moderate knowledge or moderate utilization of recommendations, and four indicated extensive knowledge or extensive utilization of recommendations.

Data Analysis
Responses from the survey items were analyzed using descriptive statistics and one-way Analysis of Variance (ANOVA) using Statistical Package for Social Scientists (SPSS) software (2005). Descriptive statistics were used to organize the demographic information and ANOVA was used in order to determine statistical significance of the differences between groups. Significance level was set at the .05 level.

Results
A total of 205 respondents started the survey instrument and 110 completed all 34 questions. Educational diagnosticians assigned to elementary campuses reported limited knowledge of SIM strategies related to reading ($M = 2.20$, $SD = .83$). Moreover, they reported that they recommend SIM strategies related to reading on a limited basis ($M = 2.07$, $SD = .88$). Educational diagnosticians assigned to elementary campuses reported that they do not possess knowledge of SIM strategies related to expressing information ($M = 1.92$, $SD = .89$). They also reported that they do not recommend SIM strategies related to expressing information ($M = 1.81$, $SD = .84$).

The data suggests that educational diagnosticians assigned to elementary campuses possess limited knowledge of SIM strategies related to storing and remembering

information (M = 2.23, SD = .85) however, they reported that they do not recommend these strategies (M = 1.97, SD = .78).

The ethnicity of the respondents was primarily Caucasian (87.3%), Hispanic 10.20%, African American 2.0%, and Asian American .5%. Moreover, in terms of gender, 94.6% of the respondents were female and 5.4% male.

Analysis of Variance (ANOVA)

Age. A one-way ANOVA ($p < .05$) between groups was conducted which compared scores of the interaction between age and knowledge level of evidence-based strategies that educational diagnosticians assigned to elementary campuses possess. The interaction between age and knowledge of reading was significant suggesting that educational diagnosticians assigned to elementary campuses and who were fifty years or older posses more knowledge of SIM strategies related to reading as compared to those aged 20 – 49, $F(1, 136) = 5.17$, $p = .024$. Even though strategies related to expressing information, $F(1,123) = .759$, $p = .39$; and strategies related to storing and remembering information, $F(1, 113) = 2.99$, $p = .087$ were not statistically significant in terms of knowledge and age, educational diagnosticians assigned to elementary campuses who were fifty years or older as compared to those aged 20 - 49 obtained higher mean scores in the three strategy areas analyzed.

Results indicate that the interaction between age and recommendations of strategies related to reading was not statistically significant between 20 – 49 and 50+ age groups: $F(1, 136) = .57$, $p = .45$. The variable of age and recommendations of strategies related to expressing information resulted in no statistical significant score among the two age groups of those individuals aged 20 – 49 and those 50 years or older: $F(1,121) = .11$, $p = .74$. The obtained results reflect that there was no statistical significant difference between the two age groups and recommendations of strategies related to storing and remembering information: $F(1, 177) = .16$, $p = .69$.

Education level. Results indicate that there was no statistically significant difference between groups of those individuals with Master's Degree and those with Master's Degree Plus Hours: $F(1, 136) = .96$, $p = .33$ and recommendations of strategies related to reading. In regards to recommending strategies related to expressing information, results indicate that there was no statistically significant difference between the two groups of those persons with Master's Degree and those individuals who have earned hours past Master's Degree: $F(1, 121) = .152$, $p = .70$. Additionally, concerning strategies related to storing and remembering information, results revealed no statistical significance between the two groups: $F(1, 77) = .27$, $p = .61$.

Years of experience. Results indicate that there was no statistically significant difference between groups of five or less years of experience, those with six to ten years of experience, and 11 or more years of experience: $F(2, 123) = .07$, $p = .94$ when recommending strategies related to reading. The variable of years of experience and recommendations of strategies related to expressing information resulted in no statistically significant difference between groups of five or less years of experience, those with six to ten years of experience, and those with 11+ years of experience: $F(2, 109) = .09$, $p = .91$. Results indicate that there was no statistical significance between these two groups when recommending strategies related to storing and remembering information: $F(2, 164) = .22$, $p = .80$

Discussion

An online survey was completed by 110 participants. The responses were analyzed using descriptive statistics and one-way analysis of variance (ANOVA) measures. The interactions between age, education level, and years of experience were investigated with relation to knowledge and recommendations of evidence-based strategies.

The first finding from this study was that mean scores vary with respect to knowledge of and recommendations that emphasize evidence-based strategies by educational diagnosticians assigned to elementary campuses. Participants reported that they possess limited knowledge of SIM reading strategies. Further, they also reported that they rarely recommended SIM reading strategies. Participants reported that they possess no knowledge of SIM strategies related to expressing information and they do not recommend SIM strategies related to expressing information. Finally, participants reported that SIM strategies related to storing and remembering information were generally not recommended even though working memory affects classroom performance in the academic areas of reading, writing, and mathematics (Dehn, 2006).

The second finding of this study indicates that educational diagnosticians, who were aged fifty years or older, reportedly possess more knowledge of SIM strategies related to reading as compared to participants who were aged 20 – 49. This finding may be attributed to the fact that most educational diagnosticians begin their positions later in their careers (Cavin, 2007) and are thus able to obtain knowledge of these strategies through more time spent in educational activities.

When analyzing the mean scores of the participants who were fifty years or older, the data suggests that they possess more knowledge, albeit limited, of SIM strategies related to expressing information and SIM strategies related to storing and retrieving information as compared to those diagnosticians aged 20 – 49. This is supported by recent research, and corroborated in this study, indicating that educational diagnosticians begin their careers later in life (Cavin, 2007). Thus, educational diagnosticians have spent more time in "teaching" positions and are afforded more opportunities to acquire knowledge of such strategies.

Limitations

The study was conducted using a descriptive design by which participants reported on their personal behaviors in relationship to knowledge of and utilization of evidence-based recommendations. Reliance on self-reporting may result in inflation of perceived positive behaviors. Likewise, participants may under-report perceived negative behaviors. (Gay, Mills, & Airasian, 2006).

Implications For Future Research

The current study provides information regarding the knowledge level of evidence-based strategies that educational diagnosticians assigned to elementary campuses possess and the extent to which they recommend specific evidence-based strategies. Future studies should address the following points.

Future studies should investigate educational diagnosticians who are assigned to secondary campuses, knowledge and recommendations of evidence-based strategies. This study examined only educational diagnosticians assigned to elementary campuses. Data collected from existing study could be compared to data from future studies of

assessment personnel assigned to secondary campuses. As students transition from elementary to secondary, the content, curriculum, environment, and demands on the learner changes. Information collected from studies involving secondary assessment personnel will assist in providing evidence-based recommendations as students transition from elementary to secondary learning environments.

This study was conducted in the state of Texas and therefore generalization is limited. Future researchers should conduct a national study of educational diagnosticians' and school psychologists' knowledge and utilization of evidence-based recommendations.

Finally, training programs that prepare assessment personnel (i.e. educational diagnosticians and school psychologist) must address the lack of knowledge of strategies and provide specific instruction of such strategies in their assessment training programs. Moreover, school districts must ensure that assessment personnel receive on-going professional development of evidence-based strategies.

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